



# **Accredited Calibration Certificates – Sorting Fact from Myth**

**by Pam Wright**

**A2LA Accreditation Manager, Calibration Program**

**ISWM University**

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# Learning Objective

- Using the resources provided you will be able to accurately identify the fact or myth for at least five scenarios on accredited calibration certificates.



# Housekeeping

- Cell Phones
- Audience Participation



# Audience Participation - WIIFM

- Developed by Christopher L. Holloway Electronics Engineer, Electromagnetics Division at NIST in Boulder, CO
- Developed because he was tired of getting "short poured" at his favorite brew pub
- Meant to be used with your standard 16 ounce U.S pint glass



# Requirements

- ISO/IEC 17025 – section 5.10 - normally
  - Title
  - Name/Address of Lab
  - Location where calibration occurred
  - Unique ID
  - Name/Address of Customer
  - Id of method used
  - Description of unit under test
  - Results
  - ID of person authorizing report



# Requirements

## ILAC P8

- Where required by customers, the calibration certificate shall be endorsed with the accredited symbol or otherwise make reference to accredited status.
- Example: A2LA Accredited to ISO/IEC 17025 certificate number 0000.01



# Requirements

- ILAC P14 – section 6
  - Report measurement uncertainty
  - *As  $y$  (quantity value)  $\pm U$  (associated expanded uncertainty)*
  - Uncertainty at most two significant figures
  - Uncertainty contributions to include relevant short-term contributions and those attributed to UUT
  - Cannot report a smaller uncertainty than the uncertainty on the scope of accreditation



# Guidance

- NCSLI Position Statement 96-1
  - NIST test report numbers solely for administrative purposes
  - Not proof of traceability
- JCGM 200:2012 International Vocabulary of Metrology (VIM)
  - **Metrological traceability:** property of a measurement result whereby the result can be related to a reference through a documented unbroken chain of calibrations, each contributing to the measurement uncertainty





## Fact or Myth? #10

**10. Because a calibration laboratory is accredited means you automatically receive an accredited calibration certificate**

**Myth:** Calibration providers often offer several levels of service including non-accredited and accredited.



## Fact or Myth? #9

9. A generic statement such as “The laboratory is accredited to ISO/IEC 17025 by XYZ” means that the results on the calibration certificate are accredited

**Myth:** This generic statement simply advertises the fact that the laboratory is accredited but does not reference their exact certificate number for traceability to their Scope of Accreditation



## Fact or Myth? #8

8. When a laboratory includes a “standard method” such as an ASTM or ASME document on their scope of accreditation, you will automatically receive an accredited calibration using this “standard method”.

**Myth:** Calibrations can be performed many different ways. Having an ASTM on the scope does not mean that you will automatically receive calibrations in accordance with those processes



## Fact or Myth? #7

**7. Inclusion of NIST test numbers in the calibration certificate is not sufficient to demonstrate traceability to the SI through NIST**

**Fact:** NIST test numbers are for NIST administrative purposes only and does not confer traceability. In order to be deemed traceable, the certificate must contain the measurement result and the measurement uncertainty



# Exercise #1

- Each row form a group
- Each group elect a spokesperson
- Each group, using ISO/IEC 17025 and ILAC P14, identify whether the five statements provided are facts or myths and why
- Statement #6 will be done collectively first as an example using ILAC P14

(10 Minutes)



## Fact or Myth? #6

**6. The calibration laboratory is not allowed to report a measurement uncertainty that is smaller than the uncertainty on the scope of accreditation**

**Fact:** A calibration laboratory shall not report an MU that is smaller than the CMC uncertainty on their scope per ILAC P14



## Fact or Myth? #5

**5. An accredited calibration laboratory cannot decide the calibration interval for my instrument**

**Fact:** The owner of the equipment decides the calibration interval and should inform the calibration provider what interval is needed when contracting for service.



## Fact or Myth? #4

**4. All the items noted in section 5.10.2 and 5.10.4 of ISO/IEC 17025 must be included in accredited calibration certificates**

**Myth:** There are caveats found in 5.10 that allows for cases where items may be excluded from the calibration certificate. For example, 5.10.2 says, "Each test report or calibration certificate shall include at least the following information, **unless the laboratory has valid reasons for not doing so.**"





## Fact or Myth? #3

3. Before and after data is always included in accredited calibration certificates.

**Myth:** ISO/IEC 17025 only requires reporting of before and after data in cases where the instrument has been adjusted or repaired.



## Fact or Myth? #2

2. The name and signature of the calibration technician is required to be included on the calibration certificate.

**Myth:** Either the name, function and signature or an equivalent identification (such as a code) **of the person authorizing the calibration certificate** is required.



# Is It A Myth? #1

1. Measurement uncertainty cannot be listed in three or more significant figures

**Fact:** ILAC P14:01/2013 requires measurement uncertainty to be rounded to two significant figures.



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## Exercise #2

- Using the index card provided, write down how you might apply what you learned today in your work
- (5 minutes)



# Questions?

Contact Information:

Pam Wright

[pwright@A2LA.org](mailto:pwright@A2LA.org)

301-644-3201

